



900 S.W. Fifth Avenue, Suite 2600
Portland, Oregon 97204
main 503.224.3380
fax 503.220.2480
www.stoel.com

March 21, 2007

THOMAS R. WOOD
Direct (503) 294-9396
trwood@stoel.com

BY EMAIL AND BY MAIL

Ms. Amy Zimpfer
Associate Director, Air Division
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

**Re: Cabrillo Port Project
Response to Information Request Dated February 27, 2007**

Dear Amy:

By letter dated October 13, 2006, you submitted a series of detailed questions to BHP Billiton LNG International Inc. ("BHP") regarding its Cabrillo Port project. We responded to most aspects of your letter on November 3, 2006 and responded to the remaining questions relating to the BACT determination for the submerged combustion vaporizers ("SCVs") by letter dated December 15, 2006. On February 27, 2007, we received an email from Margaret Alkon requesting that we supplement the December 15 response to address the following question:

"BHP's December 2005 permit application and the December 15, 2006 letter to EPA states that SCR units installed on the SCVs would be very large and that the large size presents a number of challenges such as problems with adequate mixing of ammonia and the exhaust gasses, space restraints on the FSRU, and worker safety issues. EPA's October 13 letter to BHP had a section which asked for more information about the size of the SCR unit. The very last sentence of that section stated that BHP should consider whether it was possible to design a smaller SCR system to address the space limitations and other technical issues while achieving a reduced, yet effective, level of control. In other words, is it possible to design a smaller system that only gets 60-70 percent control but that does not have the same technical issues associated with a unit sized to achieve 95 percent control?"

Oregon
Washington
California
Utah
Idaho



Amy Zimpfer
March 21, 2007
Page 2

This letter is BHP's response to this request.

As you are aware, in order to better answer your prior BACT questions, BHP engaged an independent expert to review the viability of employing SCR at Cabrillo Port. SCR has never been used on SCVs located on a floating facility. BHP's engineering staff previously evaluated the feasibility of transferring SCR technology from a land based application to a marine application and concluded that it was not directly transferable. In responding to your October letter, BHP chose to obtain an outside opinion from the engineering company that did the design work for the one SCV installation that has employed SCR (i.e., Distrigas). Aker Kvaerner's ("Aker's") experience with the Distrigas project and other SCR projects make it uniquely qualified to provide answers to the questions that EPA posed.

When BHP received Ms. Alkon's February email, it forwarded this question to Aker and requested that they prepare an addendum to the December 13, 2006 report answering the question as completely as possible. Aker was a bit confused by the question and the suggestion that the report had not already addressed this question. As the report states in multiple locations, there is no basis to determine that a marine installation could achieve 95 percent control efficiency. The report evaluated performance based on a 5 ppm emission rate, but explained carefully why it was doing so in the following text:

"In calculating cost-effectiveness a post-control NOx level of 5 ppm was used solely because this has been achieved at the Distrigas facility. **As discussed above, there is no basis for assuming that SCR units on SCVs on an FSRU would achieve these control levels.** Since there is no data available for this specific application, Aker Kvaerner is uncertain that the SCR system would achieve better results than use of lean premix burners for SCV in FSRU application."

Aker Report at page 22 (emphasis added). Aker is not comfortable with the fact that EPA has taken this carefully qualified statement regarding control efficiency and used it to suggest that a marine SCR installation could actually achieve 95 percent control efficiency. As Aker notes in its report addendum, the key finding of the December report is that there is inadequate information to assume a control efficiency for a marine SCR system and extensive research would be necessary before one could be established. Because no control efficiency could be established with any level of certainty, it did not appear necessary or appropriate to evaluate a



Amy Zimpfer
March 21, 2007
Page 3

less effective system. Nonetheless, Aker has performed the evaluation in the attached addendum to the December 2006 report.

Aker was not able to envision a means of designing a less effective SCR system that would reduce cost or size of the unit. The attached addendum to the December report concludes that decreasing the size of the SCR system and slipstreaming a portion of the exhaust directly to atmosphere does result in a smaller SCR system, but the nominal amount of space freed up by utilizing a smaller SCR system would be consumed by the additional ductwork. Aker also explored whether it would be possible to save space and/or cost by decreasing the amount of catalyst. While this approach proved possible, it does not generate any material savings in unit size or cost. Essentially, the only benefit from either system redesign is higher emissions.

Aker does discuss in the report addendum an exciting new project improvement. Earlier this month, the manufacturer of the SCVs was able to provide a new specification with an improved NOx and CO performance guarantee. The new specification represents the culmination of years of effort. The emissions reduction achieved is substantial, with maximum NOx emissions decreasing from 20 ppm to 15 ppm and CO emissions dropping from 100 ppm to 20 ppm. The changes are summarized below.

Emission Improvements Resulting From New SCV Burners (tons/year; total stationary source)			
	Previous	New	Decrease
NOx	76.9	61.6	15.3
CO	178.7	57.9	120.8

As you can see, the stationary source NOx emissions will drop by approximately 20 percent as a result of the new burner capabilities. The CO reductions are even more dramatic. BHP believes that this type of continuous improvement in project performance is key to minimizing Cabrillo Port's environmental footprint.

Please consider the attached emissions inventory and Aker addendum (which includes the new SCV manufacturer specification) to be an amendment to the Cabrillo Port Authority to Construct application.



Amy Zimpfer
March 21, 2007
Page 4

I trust that this letter and the associated attachments fully and completely answer EPA's question. Please contact me immediately if this is not the case.

Sincerely,

Thomas R. Wood

cc: Renee Klimczak
Rick Abel
Margaret Alkon
Joe Lapka

Attachments: Aker Report Addendum dated March 20, 2007
Revised Cabrillo Port Emissions Inventory dated March 13, 2007